

1. A headset for communication with a device, the headset configured for processing audio signals captured by the headset to detect user speech and transmitting, to the device, sampled representations of the captured audio signals generally only when user speech is detected.
2. The headset of claim 1 wherein the transmission to the device is wireless transmission.
3. The headset of claim 1 comprising speech recognition circuitry configured for processing the sampled representations for speech detection prior to transmission to the device.
4. The headset of claim 1 comprising filters configured for creating signal frames as sampled representations of the captured signals, the headset transmitting the signal frames when user speech is detected.
5. The headset of claim 4 wherein the filters include Mel scale filters for generating signal frames reflective of a set of filter values.
6. The headset of claim 1 comprising speech detection circuitry for analyzing sampled representations of the captured audio signals to detect user speech, the speech detection circuitry configured for selectively controlling transmission of the sampled representations to the device.

7. The headset of claim 1 comprising digitization circuitry for forming digitized representations of the audio signals.
8. The headset of claim 7 further comprising processing circuitry for forming sampled spectral representations of the digitized representations of the audio signals for transmission to the device.
9. The headset of claim 1 further comprising wireless transmission circuitry coupled for wireless transmission of sampled representations of the captured audio signals.
10. The headset of claim 1 wherein the device is a portable terminal.
11. The headset of claim 1 wherein the device is a computer.

12. A headset to be worn by a user and configured for forming sampled spectral representations of audio signals captured by the headset, the headset analyzing the sampled spectral representations to detect speech of a user.

13. The headset of claim 12 further being configured for transmitting, to a device, the sampled spectral representations of the captured audio signals generally only when speech is detected.

14. The headset of claim 13 wherein the device includes speech recognition circuitry.

15. The headset of claim 12 further comprising speech recognition circuitry.

16. The headset of claim 13 wherein the device is a portable terminal.

17. The headset of claim 13 wherein the device is a computer.

18. A headset to be worn by a user for communication with a device, the headset comprising:

a microphone for receiving audio signals;

processing circuitry configured for analyzing sampled

5 representations of the audio signals to detect speech of the user;

circuitry configured for transmitting sampled representations to the device when user speech is detected and generally not transmitting to the device when user speech is not detected.

19. The headset of claim 18 wherein the processing circuitry includes digitization circuitry for forming a digitized representation of the audio signal.

20. The headset of claim 18 wherein the processing circuitry comprises audio filters configured for creating a sampled spectral representation of the audio signals.

21. The headset of claim 18 wherein the filters produce frames associated with spectral components of the digitized representation, the headset configured for transmitting the signal frames.

22. The headset of claim 20 wherein the filters include Mel scale filters for generating signal frames reflective of a set of filter values.

23. The headset of claim 18 wherein the processing circuitry comprises speech detection circuitry for analyzing the digitized representation to detect speech, the speech detection circuitry configured for selectively controlling transmission of the digitized representation to the device.

24. The headset of claim 18 further comprising a second microphone, the first and second microphones configured to generate signals with the first microphone configured to detect a greater proportion of speech sounds of a user than the second microphone;

5 the processing circuitry configured to process signals generated by the first and second microphones to determine if the user is speaking.

25. The headset of claim 18 further comprising speech recognition circuitry.

26. The headset of claim 18 wherein the device is a portable terminal.

27. The headset of claim 18 wherein the device is a computer.

28. A headset for communication with a device, the headset comprising:
- a microphone for receiving audio signals;
 - circuitry configured for forming sampled spectral representations
- 5 of the audio signals to detect if the audio signals represent user speech;
- circuitry configured for transmitting sampled representations to the device when user speech is detected and generally not transmitting to the device when user speech is not detected.

29. A system for wireless communications comprising:
a device configured for processing speech signals;
a headset for capturing audio signals to be processed, the
headset configured for processing the captured signals to detect user speech
and for wirelessly transmitting, to the device, sampled representations of the
captured audio signals generally only when user speech is detected.
30. The system of claim 29 wherein the headset comprises a
microphone for receiving audio signals.
31. The system of claim 29 wherein the headset comprises circuitry
configured for forming a digitized representation of the audio signals and for
analyzing the digitized representation to detect if the audio signals represent
user speech.
32. The system of claim 31 wherein the headset comprises circuitry
for creating signal frames associated with spectral components of the
digitized representation, the headset configured for transmitting the signal
frames.
33. The system of claim 32 wherein headset includes Mel scale
filters for generating signal frames reflective of a set of filter values.

34. The system of claim 29 wherein the headset comprises speech detection circuitry for detecting if the audio signals represent user speech.

35. The system of claim 29 wherein the device comprises speech recognition circuitry for processing transmitted sampled representations from the headset to recognize speech patterns in the transmitted signals.

36. The system of claim 29 wherein the headset comprises speech recognition circuitry configured for performing speech recognition on the sampled representations prior to transmission to the device.

37. The system claim 29 wherein the headset is configured for forming sampled spectral representations of the captured audio signals.

38. The system of claim 37 wherein the headset is configured for transmitting the sampled spectral representations to the device

39. The system of claim 29 wherein the device is a portable terminal.

40. The system of claim 29 wherein the device is a computer.

41. The system of claim 29 further comprising a second microphone, the first and second microphones configured to generate signals with the first microphone detecting a greater proportion of speech sounds of a user than the second microphone;
- 5 the headset configured to process signals generated by the first and second microphones to detect speech of the user.
42. The system of claim 29 further comprising speech recognition circuitry configured for performing speech recognition on the sampled representations.
43. The system of claim 42 wherein the speech recognition circuitry comprises codebook lookup circuitry.
44. The system of claim 42 wherein the speech recognition circuitry further comprises pattern matching circuitry.

45. A method for wireless communication between a headset and device, the method comprising:
- 5 receiving audio signals with a headset;
- processing the audio signals at the headset to detect user speech;
- transmitting sampled representations of the audio signals to the device when user speech is detected and generally not transmitting to the device when user speech is not detected.
46. The method of claim 45 further comprising performing speech recognition processing on the audio signals at the headset.
47. The method of claim 45 further comprising performing speech recognition processing on the audio signals at the device.
48. The method of claim 45 further comprising forming signal frames as the sampled representations and transmitting the signal frames.
49. The method of claim 48 further comprising using Mel scale filters at the headset for generating the signal frames.
50. The method of claim 45 further comprising processing the audio signals to form sampled spectral representations of the audio signals.

51. The method of claim 45 wherein the device is a portable terminal.

52. The method of claim 45 wherein the device is a computer.

53. The method of claim 45 further comprising receiving audio signals with a microphone in the headset.

54. The method of claim 53 further comprising receiving audio signals with a second microphone positioned in the headset, the first microphone detecting a greater proportion of speech sounds of a user than the second microphone;

5 processing the signals generated by the first and second microphones to determine if the user is speaking.

55. The method of claim 45 further comprising performing a spectral transformation of the sampled representations for speech recognition analysis.

56. The method of claim 55 further comprising using the spectral transformation to operate codebook lookup circuitry and to output codebook values.

57. The method of claim 56 further comprising performing pattern matching processing with the codebook values.

58. A headset for communication with a remote device, the headset comprising:

a microphone system configured to capture audio signals including user speech; and

circuitry responsive to the output of said microphone system to detect user speech and configured to reduce the amount of microphone system output data communicated to said remote device based on user speech detection.

59. The headset of claim 58 wherein said circuitry detects and transmits generally only user speech.

60. The headset of claim 59 wherein said headset communicates with said remote device wirelessly.

61. The headset of claim 58 wherein said circuitry samples said audio signals and transmits sampled representations of said signals.

62. The headset of claim 61 wherein said headset communicates with said remote device wirelessly.

63. The headset of claim 58 wherein said circuitry samples said audio signals and transmits sampled representations of detected user speech.

64. The headset of claim 63 wherein said headset communicates with said remote device wirelessly.

65. The headset of claim 58 wherein said headset communicates with said remote device wirelessly.

66. A headset for communication with a remote device, the headset being configured to process audio signals captured by the headset to detect user speech and to transmit to the device generally only when speech is detected.

67. The headset of claim 66 wherein said headset includes circuitry configured to process the captured audio signal to discriminate user speech from extraneous audio signals.

68. The headset of claim 67 wherein said headset communicates with said remote device wirelessly.

69. The headset of claim 66 wherein said headset includes at least two microphones positioned at different distances from the user's mouth and circuitry responsive to the outputs of said microphones and configured to process said outputs to discriminate user speech from extraneous audio signals.

70. The headset of claim 69 wherein said headset communicates with said remote device wirelessly.

71. The headset of claim 66 wherein said headset communicates with said remote device wirelessly.

72. A headset for communication with a remote device, the headset being configured to sample the audio signals captured by the headset and transmit to the device sampled representations of the captured audio signals only when user speech is detected.

73. The headset of claim 72 wherein said headset communicates with said remote device wirelessly.

74. A voice-driven speech recognition system having distributed components comprising a microphone system, user speech digitizer, user speech detector, and back-end speech recognizer, said system further comprising:

5 a headset which includes at least said microphone system and said speech digitizer with the balance of said components being contained in one or more devices located remote from said headset;

the headset configured for transmitting, to the one or more devices, the output of the microphone system;

10 the headset including the user speech detector which is used to at least partially suppress from transmitted microphone system output, signals which do not represent user speech.

75. The system of claim 74 wherein said headset is coupled wirelessly to said one or more remote devices.

76. The system of claim 74 wherein said headset includes a user speech signal processor, said user speech signal processor being configured to sample the microphone system output to reduce the amount of microphone system output data which is transmitted to said one or more remote devices.

77. The system of claim 74 wherein said microphone system comprises at least two microphones positioned at different distances from the user's mouth, said speech detector being configured to process inputs from said microphones to effect at least partial suppression of signals which do not represent user speech.

78. The system of claim 74 wherein said headset includes a user speech signal processor, said user speech detector being responsive to the output of said user speech signal processor and configured to discriminate between user speech and extraneous audio signal and to thereby effect the at least partial suppression of signals which do not represent user speech.

79. The system of claim 74 wherein said one or more remote devices includes a local computer which contains the balance of the components not contained in the headset.

80. The system of claim 79 wherein said local computer is coupled wirelessly to said headset.

81. The system of claim 74 wherein said one or more devices includes a central computer which contains the balance of the components not contained in the headset.

82. The system of claim 81 wherein said central computer is coupled wirelessly to said headset.

83. The system of claim 74 wherein said system includes a headset, a local computer and a central computer, said headset, local computer and central computer each containing at least one of said components.

84. The system of claim 83 wherein said headset is coupled through at least one wireless link to said central computer.